

WEST VIRGINIA'S EFFORTS TO WELCOME THE DRONE INDUSTRY ARE COMMENDABLE

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West Virginia Senate Economic Development Committee

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Chair Swope, Vice Chair Martin, and members of the committee:

Good afternoon, and thank you for the invitation to testify today. My name is Brent Skorup, and I am a senior research fellow at the Mercatus Center at George Mason University, where I focus on tech and transportation law. I serve on the Texas passenger drone advisory committee, and I served as a drone law adviser to the Virginia Department of Aviation.¹

Long-distance drone services, such as home delivery, medical delivery, surveying, and utility, gas, and rail line inspections, are being tested around the United States and around the globe. Some West Virginia agencies, in fact, have contracted with drone companies to bring efficiency and financial savings to the state, and by my count, at least three West Virginia colleges and community colleges have drone workforce programs.

These are great developments. However, restrictive federal and state policies drive many drone companies to test services outside the United States. Manna, for example, is a drone services company that is making hundreds of autonomous drone deliveries daily in Galway, Ireland. Company representatives say one of their employees can make 10 deliveries in the time it takes a driver to make 1 delivery.² The company is growing and expanding to Canada and Europe, but not to the United States because of restrictive policies in the United States.³ Namely, federal drone rules move slowly, and many state leaders unfortunately believe that there is little they can do in drone policy.

1. "Urban Air Mobility Advisory Committee," Texas Department of Transportation, accessed January 27, 2022, <https://www.txdot.gov/inside-txdot/division/planning/urban-air-mobility-advisory-committee.html>. Virginia aviation officials consulted me for a months-long review of Virginia drone rules because of HB 742, which instructed the Department to consult stakeholders and experts. H.B. 742, 2020 Reg. Sess. (Va. 2020). Thanks to Patricia Patnode and Josh Levine for helpful contributions to these comments.

2. Manna "has licenses to take it across the European Union, and is poised to . . . take its tech and knowhow across the Atlantic. To Canada, at least. Regulation in the U.S. is too far behind the times." John Koetsier, "Drone Delivery Is Live Today, and It's 90% Cheaper Than Car-Based Services," *Forbes*, August 18, 2021.

3. Manna "has licenses to take it across the European Union, and is poised to . . . take its tech and knowhow across the Atlantic. To Canada, at least. Regulation in the U.S. is too far behind the times." Koetsier, "Drone Delivery Is Live Today."

For that reason, I commend this committee for prioritizing drone commerce in West Virginia. I author a periodic report ranking all 50 states on their commercial “drone readiness.”⁴ I applaud West Virginia for the creation of a drone advisory council to advise lawmakers on future developments, on how to protect residents’ property rights while taking a prudent yet permissive approach to drone flights that are high enough to not bother residents, and on how to provide a pathway for federal and state transportation officials to promote drone competition and “drone highways” throughout the state.

With those policy changes, in my scorecard, West Virginia would leapfrog from near the bottom of my rankings to number 1. That would be a home run for this state in the drone ball game.

Drone commerce is a fast-growing sector with enormous potential to benefit local and state economies. This means, keeping to my analogy, that policymakers and entrepreneurs are just playing the first inning. As this committee works to bring new drone services and drone jobs to West Virginia, it is also securing an early and enduring advantage in the innovation race before us. Thank you for the invitation. I look forward to answering any questions.

ATTACHMENT

“Which States Are Prepared for the Drone Industry? A 50-State Report Card, Release 2.0” (Mercatus Research)

4. Brent Skorup and Connor Haaland, “Which States Are Prepared for the Drone Industry? A 50-State Report Card, Release 2.0” (Mercatus Research, Mercatus Center at George Mason University, Arlington, VA, January 2021). A copy is attached to this submission.

Which States Are Prepared for the Drone Industry? A 50-State Report Card, Release 2.0

Brent Skorup and Connor Haaland



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Brent Skorup and Connor Haaland, "Which States Are Prepared for the Drone Industry? A 50-State Report Card, Release 2.0." Mercatus Research, Mercatus Center at George Mason University, Arlington, VA, January 2021.

ABSTRACT

Worldwide, commercial drone services are being tested and permitted. Progress in the United States has been slow, in part because of a lack of clarity about the federal and state roles over drones and airspace management. To jump-start the drone industry, states can create *drone highways*—aerial corridors directly above public roads. We score and rank the 50 states based on their laws and drone industry data that indicate their preparedness for drones and drone highways. Many states have laws that allow cities to lease the air rights above public roads, vest air rights with property owners, and establish avigation easements. With these laws, states can facilitate future drone operations in low-altitude airspace while Congress and the Federal Aviation Administration develop national drone policies. Creating a clear and coherent framework at the state and local level, such as a system of drone highways, will make parcel delivery faster, improve distribution of medical supplies, and create technology and logistics jobs.

JEL codes: H77, K11, K23, L93, R48, R52

Keywords: drones, federalism, aviation, FAA, air rights, property rights, transportation, public policy, regulation

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The views expressed in Mercatus Research are the authors' and do not represent official positions of the Mercatus Center at George Mason University.

Worldwide, hundreds of drone companies are testing and creating new drone services. Commercial drone companies have operated for years in China, Japan, Rwanda, and Switzerland for agricultural uses, deliveries in rural areas, and medical deliveries. In the United States, UPS, Amazon, USPS, and others also want to gain a sliver of the \$30 billion home-delivery market. The Federal Aviation Administration (FAA) authorized several drone pilot projects, including some for public safety and medical uses, but widespread deployment of commercial drones is years away in the United States.

Progress has been slow in part because of a lack of clarity about the federal and state roles over drones and airspace management. For instance, in 2019, the North Dakota legislature authorized \$28 million for a statewide drone traffic management system while negotiating with the FAA over the state's role in traffic management.¹ Ohio's drone task force director says a statewide drone traffic management system is expected in the next few years, but leadership is uncertain how to proceed given the regulatory issues.² Some members of Congress would like to codify state and local authority over drone flight management, but the technology is moving faster than federal legislation.³

1. Patrick Groves, "North Dakota Plans Statewide Drone Air Traffic Control," *GovTech*, June 10, 2019.

2. Brian Garrett-Glaser, "At Ohio Air Taxi Symposium, Policy Seen as Far behind Technology," *Aviation Today*, March 3, 2020. The director notes there are "many questions remaining on what kind of authority and oversight the FAA will have over locally-operated infrastructure."

3. There are a few bills in Congress that would codify state authority over low-altitude airspace, generally up to 200 feet above the ground. See Drone Integration and Zoning Act of 2019, S. 2607, 116th Cong. (2019); Drone Federalism Act of 2017, S. 1272, 115th Cong. (2017); Drone Innovation Act, H.R. 2930, 115th Cong. (2017).

CREATING DRONE HIGHWAYS

The Government Accountability Office (GAO) pointed out in a report to Congress in September 2020 that it is unclear how federal and state governments will share authority over low-altitude airspace, and this uncertainty slows technological progress.⁴ State authorities should prepare to have more involvement in drone operations than they historically had in aviation. States and cities have police powers over land use and zoning, and low-altitude airspace—where many drones will fly—is inseparable from the land beneath it.⁵ Further, courts look to state law when determining whether approved flight paths amount to an unconstitutional taking of property.⁶ For practical and legal reasons, then, state and city authorities will play a key role in demarcating drone highways as well as in creating time, place, and manner restrictions such as time-of-day rules, noise maximums, and privacy protections.

To jump-start this new industry and bring new drone services to residents, state and local leaders should coordinate with the FAA to create “drone highways”—aerial corridors above public rights-of-way—that operators could use for parcel delivery, inspections, search-and-rescue, and other drone services. By demarcating drone highways above roadways, regulators can avoid nuisance, trespass, and takings lawsuits from landowners.⁷

Leasing the aerial corridors above public roads would allow state and local authorities to manage drone highways for safe and efficient drone services. Exercising this power would also allow many authorities to receive passive income, through leasing or auction, from a currently unused public resource—the public right-of-way between 50 feet and 200 feet above the ground.

4. US GAO, “Unmanned Aircraft Systems: Current Jurisdictional, Property, and Privacy Legal Issues regarding the Commercial and Recreational Use of Drones,” *B-330570 Current Drone Legal Issues*, September 16, 2020. The GAO report notes that “the legal uncertainty surrounding these [drone federalism] issues is presenting challenges to integration of UAS [unmanned aircraft systems] into the national airspace system.”

5. The FAA, for instance, acknowledges the “police powers” of local authorities in five areas: land use, zoning, privacy, trespass, and law enforcement operations. *Operation and Certification of Small Unmanned Aircraft Systems*, 81 Fed. Reg. 42064, 42194 (June 28, 2016) (codified at 14 C.F.R. pts. 21, 43, 61, 91, 101, 107, et al.).

6. *United States v. Causby*, 328 U.S. 256, 266 (1946).

7. See Brent Skorup, “Drone Technology, Airspace Design, and Aerial Law in States and Cities,” (Mercatus Center at George Mason University, Working Paper December 2020), https://www.mercatus.org/system/files/skorup_drone-technology_mercatus-wp_v1.pdf. For a discussion of the imprecise nature of landowners’ air rights and interaction with aerial nuisance laws, see Lindsey P. Gustafson, “Arkansas Airspace Ownership and the Challenge of Drones,” *University of Arkansas at Little Rock Law Review* 39, no. 2 (2017): 245, 258–77.

ASSESSING STATE POLICY

State laws need to accommodate drone flights from large and small operators and clarify who—whether state, local, or federal officials—can make low-altitude airspace available to operators. This report card scores all 50 states and Puerto Rico based on their existing laws and policies. (See table 1 at the end of this section for scores and rankings.) The report identifies which states have laws and policies that show promise in creating drone highways and a statewide drone industry.

METHODOLOGY

We score states based on five factors that signal a state’s readiness for commercial drone services. Given the legal obstacles to creating drone highways above private property, we give the most weight to the two factors that make drone highways over public roads feasible—an airspace lease law and an aviation easement law. That said, the other factors are economically important and weighted accordingly. There is necessarily some subjectivity in how to weight these factors. Other relevant legal issues, such as state-based insurance and liability rules, will also affect the drone industry; in our estimation, however, the following five factors should be the top state priorities.

1. Airspace Lease Law (30 points)

To have a widespread and safe drone delivery economy, drones will in most places need “drone highways” demarcated by regulators and safely separated from airports, homes, schools, and other sensitive locations. Leasing airspace above public property would accelerate drone services because creating flight paths over backyards and private lands raises difficult questions about the taking of private property.⁸

Over one-third of states currently allow state or local authorities to lease airspace above public roads and public property. There are many variations of these road airspace-leasing provisions, but Oregon’s law is a good, clear example:

Any political subdivision holding the easement or fee title to a street or highway may lease the space above or below that street or highway for private purposes.⁹

8. *United States v. Causby*, 32 U.S. 256, 265 (1946) (holding that landowners have “a claim to [low-altitude airspace] and that invasions of it are in the same category as invasions of the surface”).

9. Ore. Rev. Stat. § 271.430 (2017).

Although these laws were passed decades ago with real estate development in mind, they allow the creation of statewide or citywide drone delivery networks.

A state law allowing authorities to lease airspace above state *and* local roads receives a full 30 points. Only seven states authorize airspace leasing above both state and local roads.¹⁰ A state law allowing authorities to lease airspace above state roads but not local roads, or vice versa, receives 10 points. Sixteen states fall into this category. The remaining states that are silent on the matter receive zero points.

2. Law Vesting Air Rights with Landowners (10 points)

Air rights laws serve a few purposes. First, they clarify that the state is exercising its police powers and defining property rights within the state. Second, where state or local authorities own public rights-of-way, air rights laws recognize their property interest in the aerial corridors above public roads. Third, these laws put drone operators and residents on notice about the extent of homeowners' property rights, which reduces litigation risk for operators and homeowners alike.

In 1922, the influential Uniform Law Commission approved a model law known as the Uniform Aeronautics Act.¹¹ One provision recognized that landowners own the low-altitude airspace above their land:

The ownership of the space above the lands and waters of this State is declared to be vested in the several owners of the surface beneath, subject to the right of flight.¹²

Nearly half of states have adopted some version of this model law; these states receive 10 points. States that are silent on the matter of air rights ownership receive zero points.

10. These seven states are Arkansas, New Hampshire, Oklahoma, Oregon, Texas, Virginia, and Washington.

11. The American Bar Association established the Uniform Law Commission in the late 1800s. Today, the Uniform Law Commissioners are lawyers, judges, law professors, and legislators appointed by their states to draft model laws that state legislatures are encouraged to enact.

12. Uniform Law Commission § 3, Uniform Aeronautics Act (1922).

3. Avigation Easement Law (25 points)

Though many states recognize landowners' property rights in the air, they often condition those rights and allow drone (and airplane) flights over land, as long as flights do not invade the land and people on the ground are not disturbed. Like the airspace ownership provision, many states have adopted a version of avigation easement provision from the Uniform Aeronautics Act:

Flight in aircraft over the lands and waters of this State is lawful, unless at such a low altitude as to interfere with the then existing use to which the land or water, or the space over the land or water, is put by the owner, or unless so conducted as to be imminently dangerous to persons or property lawfully on the land or water beneath.¹³

These avigation easement laws mean that drone operators can fly, as long as they are high enough not to bother landowners and passersby. These laws also mean that if the state or municipality does not own the aerial corridors above public roads, drones would still generally be able to access the aerial easements if state officials demarcated drone highways above public roads.

Nearly half of states have avigation easement laws and receive 25 points. The states that are silent on the matter receive zero points.

4. Drone Task Force or Program Office (20 points)

Widespread commercial drone services will raise novel issues for state and local authorities related to zoning rules, noise limits, time-of-day restrictions, job training and education, insurance, and privacy for residents within drone camera-shot range. Most of these issues require evaluation and discussion by regulators, residents, researchers, and operators. States that have a drone program office within their Department of Transportation (DOT) or a statewide task force will be ahead of the curve and can anticipate future issues before they become problems for industry and residents.¹⁴

13. Uniform Law Commission § 4, Uniform Aeronautics Act (1922).

14. In Release 1.0 of this report we called this factor "Aviation Advisory Committee." We've changed the factor name here and throughout the report to more closely resemble what the states are doing and the terminology that has developed.

States that have an active statewide task force or a program office dedicated to commercial drone services within the state receive 20 points. Eleven states fulfill this criterion.¹⁵

States that created a task force that was temporary (or appears to have lapsed) will receive 10 points. Further, states that have a legislative body that produced a drone report will receive 10 points, as it indicates growing lawmaker knowledge and prioritization of drone issues. The remaining states that have no task force, program office, or policy reports receive zero points.

5. Drone Jobs Estimate (15 points)

The final factor that contributes to a state's score is the estimated number of drone jobs listed in the state in 2019. We rank states based on the number of drone jobs per 100,000 residents so that populous states are not unduly favored. We grant one point (maximum of 15) for every two drone-related jobs per 100,000 residents. The number of drone jobs serves as a proxy for soft factors that benefit a state, such as a university or community college system with drone programs or workers in the aerospace industry. These soft factors can position states for future jobs and services growth, much like the automotive supplies industry revolving around Detroit and the information technology industry revolving around Silicon Valley.

NOTE ON CHANGES FROM RELEASE 1.0

In this report, Release 2.0, we have kept the five factors and their weighting the same as in the first release.¹⁶ However, there have been some changes in scoring and state ranks. First, in some cases state laws and policies have changed or we unintentionally omitted relevant factors in the first release (in Release 1.0 we omitted that Maryland law *does* vest air rights with landowners, for instance). Second, we have clarified that a state will receive full points for having an active, statewide drone task for, or a program office within, a transportation agency. This category was more ambiguous (and easier to fulfill) in the first release. Finally, we

15. Kansas, Michigan, and Texas have active, statewide task forces examining drone issues. Nevada, New Jersey, North Carolina, North Dakota, Ohio, and Utah have drone program offices within or overseen by their respective Department of Transportation or governor's office. Oklahoma and Virginia have both an active drone task force and a statewide program office.

16. Release 1.0 is available on the Mercatus Center website. Brent Skorup and Connor Haaland, "Which States Are Prepared for the Drone Industry? A Fifty-State Report Card" (Mercatus Center at George Mason University, Arlington, VA, March 19, 2020).

TABLE 1. STATE RANKINGS

Overall rank	State	Overall score	Overall rank	State	Overall score
1	North Dakota	70	26	Hawaii	35
2	Arkansas	69		New Hampshire	35
3	Oklahoma	64	28	Utah	34
4	Nevada	63	29	Michigan	33
5	Virginia	60	30	Ohio	32
6	Georgia	59		Oregon	32
	North Carolina	59	32	Connecticut	28
8	New Jersey	55	33	Kansas	26
9	Delaware	54	34	Alaska	25
	Texas	54		Louisiana	25
11	Minnesota	50		Pennsylvania	25
12	Wisconsin	49	37	Illinois	23
13	Arizona	48	38	Maine	17
	California	48	39	Alabama	16
	Wyoming	48		New York	16
16	Vermont	47	41	West Virginia	15
17	Washington	45	42	Florida	13
18	Montana	42	43	South Carolina	12
19	Idaho	40	44	New Mexico	11
	Massachusetts	40	45	South Dakota	10
	Tennessee	40	46	Nebraska	9
22	Maryland	39		Rhode Island	9
23	Colorado	38	48	Iowa	4
	Missouri	38		Mississippi	4
25	Indiana	37	50	Kentucky	3

Note: Puerto Rico has a profile at the end of the report; however, because our data source does not provide drone jobs numbers for US territories, we have omitted Puerto Rico from the rankings.

have added a profile for Puerto Rico to the end of the report; however, because our data source does not provide drone jobs numbers for US territories, we have omitted Puerto Rico from the rankings.

SOURCES AND LEGAL DISCLAIMER

The three relevant airspace laws were found in state codes. The existence of a drone task force or DOT program office was compiled by consulting drone experts, state law databases, and news reports. The authors derived all drone job-listing data from an Axios analysis of drone-related job postings between January 2019 and October 2019.¹⁷

17. Kaveh Waddell, “Where the Drone Jobs Will Land,” Axios, November 9, 2019. The data is from ZipRecruiter job listings. Axios records listings in metropolitan areas, not states, so jobs in metropolitan areas that straddle state lines count for the state in which the majority of the metropolitan area resides (metro New York City drone jobs, for instance, count as New York jobs, which may undercut drone jobs in Connecticut and New Jersey somewhat). Drone jobs in the Washington, DC, metro area are counted as Virginia jobs, given the prevalence of military and aerospace contractors in Virginia.

This report is not legal advice and is intended for informational and educational purposes only. Laws and legal interpretations are subject to change. Operators should consult a licensed local attorney before attempting drone operations.

Trace Mitchell, William Gu, and Patricia Patnode also assisted in this research. To contact the authors about the report analysis or about omissions and updates, please email bskorup@mercatus.gmu.edu.

ALABAMA

RANK
39
(TIED)

Score: 16/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 10/20
- Drone Jobs Estimate: 6/15

Factors Helping the State Score

- *Drone Task Force or Program Office*: Alabama gets partial points because it had a temporary drone task force. In 2014, Governor Robert Bentley established a drone task force, which produced a report for the governor and state legislature.¹⁸ To receive a full score, the state needs an active drone task force or a program office within the state transportation department.
- *Drone Jobs Estimate*: Alabama has 12 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Alabama law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: Alabama law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Alabama law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.

These factors make Alabama tied for the 39th most drone-friendly state in the country.

18. That task force appears to be inactive. See Alabama Department of Transportation, “Governor’s Alabama Unmanned Aerial Systems (UAS) Task Force,” accessed October 30, 2020, <https://www.dot.state.al.us/aerweb/AlabamaUAS/UASindex.html>.

ALASKA

RANK
34
(TIED)

Score: 25/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 10/20
- Drone Jobs Estimate: 15/15

Factors Helping the State Score

- *Drone Task Force or Program Office*: Alaska gets partial points because it had a temporary drone task force. In 2014, the state legislature established a legislative drone task force, which met periodically.¹⁹ For a full score, the state needs an active drone task force or a program office within the state transportation department.
- *Drone Jobs Estimate*: Alaska scores well on drone jobs, leading the country with 44 per 100,000 people.

Factors Hindering the State Score

- *Airspace Lease Law*: Alaska law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: Alaska law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Alaska law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.

These factors make Alaska tied for the 34th most drone-friendly state in the country.

19. That task force appears to be inactive. See Alaska State Legislature, “Task Force on Unmanned Aircraft Systems,” accessed March 4, 2020, <http://www.akleg.gov/basis/Committee/Details/31?code=SUNM>. While it does not contribute to the state score, it is notable that the University of Alaska Fairbanks is home to the Alaska Center for Unmanned Aircraft Systems Integration (ACUASI), whose mission is to be a world-class research center for unmanned aircraft systems, with a special emphasis on the Arctic and sub-Arctic regions. University of Alaska Fairbanks, “About Us,” ACUASI, accessed March 4, 2020, <https://acuasi.alaska.edu/about>.

ARIZONA

RANK
13
(TIED)

Score: 48/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 3/15

Factors Helping the State Score

- *Airspace Lease Law*: Arizona law allows the director of the Arizona DOT to lease airspace and therefore create drone highways above state roads.²⁰ However, the state did not receive full points because the law is silent as to whether local officials can lease airspace above local roads and property.
- *Law Vesting Air Rights with Landowners*: Arizona law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.²¹
- *Avigation Easement Law*: Arizona law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.²²

Factors Hindering the State Score

- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Arizona has 5.8 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Arizona tied for the 13th most drone-friendly state in the country.

20. Ariz. Rev. Stat. Ann. § 28-7048 (2015).

21. Ariz. Rev. Stat. Ann. § 28-8207 (2018).

22. Ariz. Rev. Stat. Ann. § 28-8277 (2018).

ARKANSAS

RANK
2

Score: 69/100

- Airspace Lease Law: 30/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 4/15

Factors Helping the State Score

- *Airspace Lease Law*: Arkansas law allows state and local authorities to lease low-altitude airspace above state roads and local roads.²³ Such a law allows state and local authorities to create drone highways above state and local roadways.
- *Law Vesting Air Rights with Landowners*: Arkansas law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.²⁴
- *Avigation Easement Law*: Arkansas law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.²⁵

Factors Hindering the State Score

- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Arkansas has 8.5 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Arkansas the 2nd most drone-friendly state in the country.

23. Ark. Code Ann. § 27-64-101 (2017).

24. Ark. Code Ann. § 27-116-102 (2017).

25. Ark. Code Ann. § 27-116-102 (2017).

CALIFORNIA

RANK
13
(TIED)

Score: 48/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 3/15

Factors Helping the State Score

- *Airspace Lease Law*: California law allows state authorities to lease low-altitude airspace above state highways.²⁶ Such a law allows state officials to create drone highways above these roadways. However, the state did not receive full points because the law is silent as to whether local officials can lease airspace above local roads.
- *Law Vesting Air Rights with Landowners*: California law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.²⁷
- *Avigation Easement Law*: California law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.²⁸

Factors Hindering the State Score

- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: California has 6.6 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make California tied for the 13th most drone-friendly state in the country.

26. Cal. Sts. & High. Code § 104.12 (2020).

27. Cal. Pub. Util. Code § 21402 (2020).

28. Cal. Pub. Util. Code § 21403 (2020).

COLORADO

RANK
23
(TIED)

Score: 38/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 3/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Colorado law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.²⁹ Colorado law also affirms the existence of “estates, rights, and interests” in airspace and treats airspace as land.³⁰
- *Avigation Easement Law*: Colorado law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.³¹

Factors Hindering the State Score

- *Airspace Lease Law*: Colorado law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a statewide drone task force or creating a drone program office within the transportation department.³²
- *Drone Jobs Estimate*: Colorado has 6.6 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Colorado tied for the 23rd most drone-friendly state in the country.

29. Colo. Rev. Stat. § 41-1-107 (2016).

30. Colo. Rev. Stat. § 38-32-101 (2016).

31. Colo. Rev. Stat. § 13-21-118 (2016).

32. The Colorado legislature passed a law in 2017 creating a center within the Division of Fire Prevention and Control that studies the integration of unmanned aircraft systems as they relate to public safety functions. *See* HB17-1070, 72nd Colo. Gen. Assemb., Reg. Sess. (2017). While commendable, the narrow scope of the center’s responsibilities does not satisfy the criteria of this report.

CONNECTICUT

RANK
32

Score: 28/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 10/20
- Drone Jobs Estimate: 8/15

Factors Helping the State Score

- *Airspace Lease Law*: Connecticut law allows local authorities to lease low-altitude airspace above local roads.³³ Such a law allows authorities to create drone highways above local roadways. However, the state did not receive full points because the law is silent as to whether state officials can lease airspace above state roads and state property.
- *Drone Jobs Estimate*: Connecticut has 16.8 drone-related jobs per 100,000 people, ranking it in the top half of states.
- *Drone Task Force or Program Office*: Connecticut gets partial points because the legislature produced a drone policy report.³⁴

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Connecticut law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Connecticut law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.

These factors make Connecticut the 32nd most drone-friendly state in the country.

33. Conn. Gen. Stat. Ann. § 13a-80g (2018).

34. The 2014 Drone Use Regulation report, produced by the Connecticut General Assembly, was a thorough assessment of state drone policies and how state agencies are involved with regulation. See Legislative Program Review and Investigations Committee, Conn. Gen. Assemb., Drone Use Regulation (December 2014), <https://www.cga.ct.gov/pri/docs/2014/drone%20use%20regulation%20final%20report%20for%20printing.pdf>.

DELAWARE

RANK
9
(TIED)

Score: 54/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 10/20
- Drone Jobs Estimate: 9/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Delaware law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.³⁵
- *Avigation Easement Law*: Delaware law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.³⁶
- *Drone Task Force or Program Office*: Delaware gets partial points because the state created a temporary statewide drone task force. The task force was created in 2015 to encourage education about drones and commercial drone services.³⁷
- *Drone Jobs Estimate*: Delaware has 18 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Delaware law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.

These factors make Delaware tied for the 9th most drone-friendly state in the country.

35. Del. Code tit. 2 § 303 (Deering 2020).

36. Del. Code tit. 2 § 304 (Deering 2020).

37. The task force appears to have lapsed around 2016. See Nick Roth, "Drones Are the Buzz in Lewes," *Cape Gazette*, October 28, 2016.

FLORIDA

RANK
42

Score: 13/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 3/15

Factors Helping the State Score

- *Airspace Lease Law*: Florida law allows state authorities to lease low-altitude airspace above state highways.³⁸ Such a law allows state or local authorities to create drone highways above these roadways. However, the state did not receive full points because the law is silent as to whether local officials can lease airspace above local roads.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Florida law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Florida law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Florida has 5.6 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Florida the 42nd most drone-friendly state in the country.

38. Fla. Stat. Ann. § 337.251 (2019).

GEORGIA

RANK
6
(TIED)

Score: 59/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 10/20
- Drone Jobs Estimate: 4/15

Factors Helping the State Score

- *Airspace Lease Law*: Georgia law allows state authorities to lease low-altitude airspace above limited-access highways. Such a law allows state authorities to create drone highways above these roadways.³⁹ However, the state did not receive full points because the law is silent as to whether officials can lease airspace above local roadways and state highways that are not limited access.
- *Law Vesting Air Rights with Landowners*: Georgia law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁴⁰
- *Avigation Easement Law*: Georgia law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁴¹
- *Drone Task Force or Program Office*: Georgia gets partial points because the legislature produced a drone policy report.⁴²

Factors Hindering the State Score

- *Drone Jobs Estimate*: Georgia has 7.4 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Georgia tied for the 6th most drone-friendly state in the country.

39. Ga. Code Ann. § 32-6-117 (2018).

40. Ga. Code Ann. § 44-1-2 (2019).

41. Ga. Code Ann. § 6-2-5 (2010).

42. The 2015 report contained clarifying recommendations for the government to use state-owned drones while considering surveillance boundaries and privacy laws. See Georgia House of Representatives, House Study Committee on the Use of Drones (December 2015).

HAWAII

RANK
26
(TIED)

Score: 35/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 0/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Hawaii law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁴³
- *Avigation Easement Law*: Hawaii law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁴⁴

Factors Hindering the State Score

- *Airspace Lease Law*: Hawaii law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Hawaii has zero drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Hawaii tied for the 26th most drone-friendly state in the country.

43. Hawaii Rev. Stat. § 263-3 (2012).

44. Hawaii Rev. Stat. § 263-4 (2012).

IDAHO

RANK
19
(TIED)

Score: 40/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Idaho law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁴⁵
- *Avigation Easement Law*: Idaho law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁴⁶
- *Drone Jobs Estimate*: Idaho has 9.3 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Idaho law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make Idaho tied for the 19th most drone-friendly state in the country.

45. Idaho Code § 21-203 (2016).

46. Idaho Code § 21-204 (2019).

ILLINOIS

RANK
37

Score: 23/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 10/20
- Drone Jobs Estimate: 3/15

Factors Helping the State Score

- *Airspace Lease Law*: Illinois law allows Chicago authorities to lease low-altitude airspace above city streets⁴⁷ and to create drone highways above these roadways. However, the state did not receive full points because the law is silent as to whether state officials can lease airspace above state roads and whether local officials outside Chicago can lease airspace above local roads.⁴⁸
- *Drone Task Force or Program Office*: Illinois gets partial points because it had a temporary drone task force.⁴⁹

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Illinois law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Illinois law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Jobs Estimate*: Illinois has 6.0 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Illinois the 37th most drone-friendly state in the country.

47. 65 Ill. Comp. Stat. 20/21-17 (2019).

48. Illinois law allows municipalities to sell or lease airspace above local roads but prohibits such sales for “purely private uses.” See 65 Ill. Comp. Stat. 5/11-80-8 (2020). It is unclear whether drone operations would qualify as purely private use or a public benefit. There appear to be other strict limits on the airspace leasing ability of municipalities. See 65 Ill. Comp. Stat. 5/11-75-1 (2020) (limiting airspace leasing to “the person who holds the fee or leasehold estate . . . in the property on both sides” of the street).

49. The state created a drone task force under a bill passed in 2016 called the Illinois Unmanned Aerial System Oversight Task Force Act. See 20 Ill. Comp. Stat. 5065/ (2020). This task force met monthly from January 2016 until June 2016 on issues related to UAS. In its final report, the task force submitted its proposals to the governor. See Illinois Unmanned Aerial System Oversight Task Force, Illinois Department of Transportation, Final Report (June 2016).

INDIANA

RANK
25

Score: 37/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 2/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Indiana law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁵⁰
- *Avigation Easement Law*: Indiana law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁵¹

Factors Hindering the State Score

- *Airspace Lease Law*: Indiana law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Indiana has 4.7 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Indiana the 25th most drone-friendly state in the country.

50. Ind. Code § 8-21-4-3 (2018).

51. Ind. Code § 8-21-4-4 (2018).

IOWA

RANK
48
(TIED)

Score: 4/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 4/15

Factors Hindering the State Score

- *Airspace Lease Law*: Iowa law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: Iowa law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Iowa law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Iowa has 8.5 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Iowa tied for the 48th most drone-friendly state in the country.

KANSAS

RANK
33

Score: 26/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 6/15

Factors Helping the State Score

- *Drone Task Force or Program Office*: Kansas gets full points. The state has an active drone task force overseen by the Kansas Department of Transportation with members from various state governmental agencies.⁵² The Kansas UAS program has a specific focus on long-line linear infrastructure such as highways, railroads, and energy distribution lines.
- *Drone Jobs Estimate*: Kansas has 11.5 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Kansas law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: Kansas law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Kansas law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.

These factors make Kansas the 33rd most drone-friendly state in the country.

52. See Jerry Siebenmark, "State Task Force to Look at Ways for Agencies to Use Drones," *Wichita Eagle*, August 16, 2016. The task force appears to be active. See Kansas UAS Integration Pilot Program, "About Us," accessed November 4, 2020, <https://www.ippkansas.org/>.

KENTUCKY

RANK
50

Score: 3/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 3/15

Factors Hindering the State Score

- *Airspace Lease Law*: Kentucky law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: Kentucky law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Kentucky law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Kentucky has 5.5 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Kentucky the 50th most drone-friendly state in the country.

LOUISIANA

RANK
34
(TIED)

Score: 25/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Airspace Lease Law*: Louisiana law allows local authorities to lease low-altitude airspace above local roads.⁵³ Such a law allows local authorities to create drone highways above these roadways. However, the state did not receive full points because the law is silent as to whether state officials can lease airspace above state roads and state property.⁵⁴
- *Law Vesting Air Rights with Landowners*: Louisiana law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁵⁵

Factors Hindering the State Score

- *Avigation Easement Law*: Louisiana law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Louisiana has 9.2 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Louisiana tied for the 34th most drone-friendly state in the country.

53. La. Rev. Stat. §§ 33:4712, 33:4712.1 (2020).

54. It is noteworthy that Louisiana law also allows the state land office and municipalities to lease airspace above the nonnavigable waters of the state. La. Rev. Stat. § 41:91 (2020).

55. La. Rev. Stat. § 14:63 (2020).

MAINE

RANK
38

Score: 17/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 7/15

Factors Helping the State Score

- *Airspace Lease Law*: Maine law allows local authorities to lease low-altitude airspace above local roads. Such a law allows local authorities to create drone highways above these roadways.⁵⁶ However, the state did not receive full points because the law is silent as to whether state officials can lease airspace above state roads and state property.
- *Drone Jobs Estimate*: Maine has 13.2 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Maine law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Maine law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make Maine the 38th most drone-friendly state in the country.

56. Maine Rev. Stat. tit. 30-A § 3551 (2019).

MARYLAND

RANK
22

Score: 39/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 4/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Maryland law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁵⁷
- *Avigation Easement Law*: Maryland law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁵⁸

Factors Hindering the State Score

- *Airspace Lease Law*: Maryland law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a statewide drone task force or creating a drone program office within the transportation department.⁵⁹
- *Drone Jobs Estimate*: Maryland has 8.2 drone-related jobs per 100,000 people, ranking it in the bottom half of states.⁶⁰

These factors make Maryland the 22nd most drone-friendly state in the country.

57. Md. Transp. Code Ann. § 5-104 (2020).

58. Md. Transp. Code Ann. § 5-1001 (2019).

59. The legislature instructed the Department of Commerce to draft a state drone report, which was released in 2015. See Maryland Department of Commerce, *UAS and Maryland: Opportunity and Accountability* (2015). While commendable, the report would need to come directly from the legislature to signify lawmaker priority of drone policy and to receive partial points.

60. Our drone jobs data source collects job information at the metropolitan level. We assigned Washington, DC-area drone jobs to Virginia, given the prevalence of defense and aerospace firms in northern Virginia. As a result, Maryland drone jobs are undercounted. This is a limitation of the data available that we hope to improve in later reports.

MASSACHUSETTS

RANK
19
(TIED)

Score: 40/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Airspace Lease Law*: Massachusetts law allows state authorities to lease low-altitude airspace over Boston’s metropolitan highways and above state highways.⁶¹ Such a law allows state authorities to create drone highways above these roadways. However, the state did not receive full points because the law is silent as to whether local officials outside of Boston can lease airspace above local roads.
- *Avigation Easement Law*: Massachusetts law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁶²
- *Drone Jobs Estimate*: Massachusetts has 9.7 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Massachusetts law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make Massachusetts tied for the 19th most drone-friendly state in the country.

61. Mass. Gen. Laws Ann. ch. 6C, § 46 (2020); Mass. Gen. Laws Ann. ch. 81, § 7L (2019).

62. Mass. Gen. Laws Ann. ch. 90, § 46 (2019).

MICHIGAN

RANK
29

Score: 33/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 3/15

Factors Helping the State Score

- *Airspace Lease Law*: Michigan law allows local authorities to lease low-altitude airspace above local roads.⁶³ Such a law allows authorities to create drone highways above local roadways. However, the state did not receive full points because the law is silent as to whether state officials can lease airspace above state roads and state property.
- *Drone Task Force or Program Office*: Michigan gets full points. The state has an active drone task force overseen by the Michigan Department of Transportation (MDOT), with members from various state governmental agencies.⁶⁴ This 27-member task force was created by the legislature in 2017 and develops statewide policy recommendations on the operation, use, and regulation of drones in Michigan.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Michigan law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Michigan law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Jobs Estimate*: Michigan has 5.8 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Michigan the 29th most drone-friendly state in the country.

63. Michigan law allows local authorities to control, regulate, and use airspace above local roads. Presumably these permissive laws authorize leasing. See Mich. Comp. L. § 117.4h (2020) (cities); Mich. Comp. L. § 78.24 (2020) (villages); Mich. Comp. L. § 42.16 (2020) (townships).

64. MDOT Office of Aeronautics, “Unmanned Aircraft Systems Task Force,” accessed March 4, 2020, https://www.michigan.gov/aero/0,4533,7-352-79155_79157_84492---,00.html.

MINNESOTA

RANK
11

Score: 50/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Airspace Lease Law*: Minnesota law allows state authorities to lease low-altitude airspace over “trunk highways.”⁶⁵ Such a law allows state authorities to create drone highways above these roadways. However, the state did not receive full points because the law is silent as to whether local officials can lease airspace above local roads and whether airspace above nontrunk highways can be leased.
- *Law Vesting Air Rights with Landowners*: Minnesota law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁶⁶
- *Avigation Easement Law*: Minnesota law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁶⁷
- *Drone Jobs Estimate*: Minnesota has 10.0 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make Minnesota the 11th most drone-friendly state in the country.

65. Minn. Stat. § 161.433 (2019).

66. Minn. Stat. § 360.012 (2019), Subd. 2.

67. Minn. Stat. § 360.012 (2019).

MISSISSIPPI

RANK
48
(TIED)

Score: 4/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 4/15

Factors Hindering the State Score

- *Airspace Lease Law*: Mississippi law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: Mississippi law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Mississippi law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Mississippi has 7.2 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Mississippi tied for the 48th most drone-friendly state in the country.

MISSOURI

RANK
23
(TIED)

Score: 38/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 3/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Missouri law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁶⁸
- *Avigation Easement Law*: Missouri law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁶⁹

Factors Hindering the State Score

- *Airspace Lease Law*: Missouri law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Missouri has 6.7 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Missouri tied for the 23rd most drone-friendly state in the country.

68. Mo. Rev. Stat. § 305.020 (2012).

69. Mo. Rev. Stat. § 305.030 (2018).

MONTANA

RANK
18

Score: 42/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 7/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Montana law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁷⁰
- *Avigation Easement Law*: Montana law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁷¹
- *Drone Jobs Estimate*: Montana has 13.5 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Montana law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.⁷²

These factors make Montana the 18th most drone-friendly state in the country.

70. Mont. Code Ann. § 67-1-203 (2019).

71. Mont. Code Ann. § 67-1-204 (2019).

72. The Montana Department of Transportation (MDT) created a listserv as a forum for distributing drone-related information to residents of Montana. See MDT, “Unmanned Aerial Vehicles (UAV) Forum,” accessed March 4, 2020, <https://www.mdt.mt.gov/mdt/uav-forum.shtml>. While commendable, it does not satisfy the criteria of this report.

NEBRASKA

RANK
46
(TIED)

Score: 9/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 9/15

Factors Helping the State Score

- *Drone Jobs Estimate*: Nebraska has 18.1 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Nebraska law does not allow public authorities to lease low-altitude airspace above public roads and public property.⁷³ Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: Nebraska law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Nebraska law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make Nebraska tied for the 46th most drone-friendly state in the country.

73. More precisely, Nebraska law allows cities to lease airspace but not to drone operators. Leases to the airspace above local roads can be made only to the landowners on either side of the street. See Nebr. Rev. Stat. § 14-1730 (2020).

NEVADA

RANK
4

Score: 63/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 8/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Nevada law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁷⁴
- *Avigation Easement Law*: Nevada law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁷⁵
- *Drone Task Force or Program Office*: Within the Governor’s Office of Economic Development, the state created a drone program office—the Nevada Institute for Autonomous Systems—which leads the commercial drone industry through business relations and collaboration with research institutions and develops state drone policy.⁷⁶
- *Drone Jobs Estimate*: Nevada has 15.6 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Nevada law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.

These factors make Nevada the 4th most drone-friendly state in the country.

74. Nev. Rev. Stat. Ann. § 493.040 (2013).

75. Nev. Rev. Stat. Ann. § 493.050(1) (2017).

76. Nevada Institute for Autonomous Systems, “About,” accessed March 4, 2020, <https://nias-uas.com/about/>.

NEW HAMPSHIRE

RANK
26
(TIED)

Score: 35/100

- Airspace Lease Law: 30/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Airspace Lease Law*: New Hampshire law allows state and local authorities to lease low-altitude airspace above state and local roads. Such a law allows state and local authorities to create drone highways above state and local roadways.⁷⁷
- *Drone Jobs Estimate*: New Hampshire has 10.8 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: New Hampshire law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: New Hampshire law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make New Hampshire tied for the 26th most drone-friendly state in the country.

77. N.H. Rev. Stat. Ann. § 236:18 (2017); N.H. Rev. Stat. Ann. § 48-B:2 (2018).

NEW JERSEY

RANK
8

Score: 55/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 0/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: New Jersey law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁷⁸
- *Avigation Easement Law*: New Jersey law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁷⁹
- *Drone Task Force or Program Office*: New Jersey gets full points. The state created a drone program within the Bureau of Aeronautics of the New Jersey Department of Transportation (NJDOT).⁸⁰ The state has hired professionals to lead the program and intends to use drone technology for initiatives related to traffic management, structural inspections, and aerial corridor 3D mapping.

Factors Hindering the State Score

- *Airspace Lease Law*: New Jersey law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Jobs Estimate*: New Jersey has 0.1 drone-related jobs per 100,000 people, ranking it in the bottom half of states.⁸¹

These factors make New Jersey the 8th most drone-friendly state in the country.

78. N.J. Rev. Stat. § 6:2-5 (2013); N.J. Rev. Stat. § 46:3-19 (2013).

79. N.J. Rev. Stat. § 6:2-6 (2013).

80. "Drone Program Takes Off in Bureau of Aeronautics," *NJDOT Technology Transfer*, January 24, 2018.

81. Our drone jobs data source collects job information at the metropolitan level. For metropolitan areas that straddle state lines, such as New York City, we generally assign jobs to the state where the largest city is located. As a result, New Jersey drone jobs are undercounted. This is a limitation of the data available that we hope to improve in later reports.

NEW MEXICO

RANK
44

Score: 11/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 11/15

Factors Helping the State Score

- *Drone Jobs Estimate*: New Mexico has 21.4 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: New Mexico law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: New Mexico law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: New Mexico law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make New Mexico the 44th most drone-friendly state in the country.

NEW YORK

RANK
39
(TIED)

Score: 16/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 6/15

Factors Helping the State Score

- *Airspace Lease Law*: New York law allows local authorities to lease low-altitude airspace above local roads.⁸² Such a law allows state and local authorities to create drone highways above state and local roadways. However, the state did not receive full points because the law is silent as to whether state officials can lease airspace above state roads and property.
- *Drone Jobs Estimate*: New York has 12.9 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: New York law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: New York law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make New York tied for the 39th most drone-friendly state in the country.

82. N.Y. Gen. Mun. Law § 72-N (2020).

NORTH CAROLINA

RANK
6
(TIED)

Score: 59/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 4/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: North Carolina law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁸³
- *Avigation Easement Law*: North Carolina law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁸⁴
- *Drone Task Force or Program Office*: North Carolina gets full points. The state has a drone program office in its division of aviation with the goal of promoting economic development and airport safety in North Carolina.⁸⁵

Factors Hindering the State Score

- *Airspace Lease Law*: North Carolina law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Jobs Estimate*: North Carolina has 9.0 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make North Carolina tied for the 6th most drone-friendly state in the country.

83. N.C. Gen. Stat. § 63-12 (2019).

84. N.C. Gen. Stat. § 63-13 (2019).

85. North Carolina Department of Transportation, Unmanned Aircraft Systems (December 10, 2020), <https://www.ncdot.gov/divisions/aviation/uas/Pages/default.aspx>.

NORTH DAKOTA

RANK
1

Score: 70/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 15/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: North Dakota law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁸⁶
- *Avigation Easement Law*: North Dakota law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.⁸⁷
- *Drone Task Force or Program Office*: North Dakota gets full points. The state has established a drone program office—the Northern Plains Unmanned Systems Authority—that is overseen by state agencies and chaired by the lieutenant governor.⁸⁸ The program office develops policies that advance UAS operations, including beyond visual line of sight, flights over people, and night operations.
- *Drone Jobs Estimate*: North Dakota has 40.0 drone-related jobs per 100,000 people, ranking it second among all states.

Factors Hindering the State Score

- *Airspace Lease Law*: North Dakota law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.

These factors make North Dakota the most drone-friendly state in the country.

86. N.D. Cent. Code § 2-03-03 (2019).

87. N.D. Cent. Code § 2-03-04 (2019).

88. Northern Plains Unmanned Systems Authority, “Executive Team,” accessed November 4, 2020, <https://www.npuasts.com/team>.

OHIO

RANK
30
(TIED)

Score: 32/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 2/15

Factors Helping the State Score

- *Airspace Lease Law*: Ohio law allows state authorities to lease low-altitude airspace above state roads.⁸⁹ Such a law allows state authorities to create drone highways above state roadways. However, the state did not receive full points because the law is silent as to whether state or local officials can lease airspace above local roads.
- *Drone Task Force or Program Office*: Ohio gets full points. The state created a drone program office—the Ohio UAS Center—which is an initiative created and overseen by the Ohio Department of Transportation (ODOT).⁹⁰ ODOT and the program office are researching and considering the creation of drone highways in aerial corridors above Interstate 71.⁹¹

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Ohio law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Ohio law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Jobs Estimate*: Ohio has 4.2 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Ohio tied for the 30th most drone-friendly state in the country.

89. Ohio Rev. Code § 5501.45 (2003).

90. Ohio Unmanned Aircraft Systems Center, accessed October 29, 2020, <https://uas.ohio.gov/wps/portal/gov/uas/initiatives>. Ohio UAS Center has initiatives like FlyOhio and SkyVision for enabling drone flights in low-altitude airspace and conducting unmanned traffic management research.

91. See ODOT, Economic Impact Report for Advanced Autonomous Aircraft Technologies in Ohio, RFP Solicitation No. 2020-18 (December 2019).

OKLAHOMA

RANK
3

Score: 64/100

- Airspace Lease Law: 30/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 4/15

Factors Helping the State Score

- *Airspace Lease Law*: Oklahoma law allows airspace leasing above local roads, state roads, and state property.⁹² This law allows state authorities to create drone highways above state and local roadways.
- *Law Vesting Air Rights with Landowners*: Oklahoma law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁹³ Additionally, Oklahoma law also affirms the existence of “titles, estates, rights, and interests” in airspace and treats airspace as real property.⁹⁴
- *Drone Task Force or Program Office*: Oklahoma gets full points. In May 2020, a state law created a drone program office—the Oklahoma Advanced Mobility Pilot Program—within the Oklahoma DOT.⁹⁵ Among other things, the program creates a 9-member advisory council that will make recommendations to the state transportation department about drone and electric vertical-takeoff-and-landing aircraft.⁹⁶

Factors Hindering the State Score

- *Avigation Easement Law*: Oklahoma law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Jobs Estimate*: Oklahoma has 7.3 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Oklahoma the 3rd most drone-friendly state in the country.

92. Okla. Stat. tit. 60 § 812 (2019).

93. Okla. Stat. tit. 60 § 802 (2016).

94. Okla. Stat. tit. 60 § 805 (2014).

95. Okla. Stat. tit. 3 § 374 (2020).

96. Oklahoma Senate, “Oklahoma Advanced Mobility Pilot Program Signed into Law,” press release, May 27, 2020.

OREGON

RANK
30
(TIED)

Score: 32/100

- Airspace Lease Law: 30/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 2/15

Factors Helping the State Score

- *Airspace Lease Law*: Oregon law allows airspace leasing above local roads, state roads, and state property.⁹⁷ This law allows state authorities to create drone highways above state and local roadways.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Oregon law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.⁹⁸
- *Avigation Easement Law*: Oregon law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a statewide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Oregon has 4.9 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Oregon tied for the 30th most drone-friendly state in the country.

97. Ore. Rev. Stat. § 271.430 (2019).

98. Oregon allows landowners to sue for drone trespass, but there are many exemptions for drone flights, so the litigation risk remains high. See Ore. Rev. Stat. § 837.380 (2020).

PENNSYLVANIA

RANK
34
(TIED)

Score: 25/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 10/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Pennsylvania law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.⁹⁹
- *Drone Task Force or Program Office*: Pennsylvania created a joint state government commission to report on UAS in the state in 2017. This commission consisted of 14 members of the Pennsylvania state legislature.¹⁰⁰
- *Drone Jobs Estimate*: Pennsylvania has 10.3 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Pennsylvania law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Avigation Easement Law*: Pennsylvania law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.

These factors make Pennsylvania tied for the 34th most drone-friendly state in the country.

99. 68 P.S. § 802.

100. Commonwealth of Pennsylvania, Gen. Assemb., Joint State Government Commission, Unmanned Aircraft Systems in Pennsylvania (January 2017).

RHODE ISLAND

RANK
46
(TIED)

Score: 9/100

- *Airspace Lease Law*: 0/30
- *Law Vesting Air Rights with Landowners*: 0/10
- *Avigation Easement Law*: 0/25
- *Drone Task Force or Program Office*: 0/20
- *Drone Jobs Estimate*: 9/15

Factors Helping the State Score

- *Drone Jobs Estimate*: Rhode Island has 18.1 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Rhode Island law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: Rhode Island law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Rhode Island law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a statewide drone task force or creating a drone program office within the transportation department.

These factors make Rhode Island tied for the 46th most drone-friendly state in the country.

SOUTH CAROLINA

RANK
43

Score: 12/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 2/15

Factors Helping the State Score

- *Airspace Lease Law*: South Carolina law allows local authorities to lease low-altitude airspace above local roads.¹⁰¹ Such a law allows local authorities to create drone highways above local roadways. However, the state did not receive full points because the law is silent as to whether state officials can lease airspace above state roads and property.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: South Carolina law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: South Carolina law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: South Carolina has 4.9 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make South Carolina the 43rd most drone-friendly state in the country.

101. S.C. Code Ann. § 5-7-50 (2020).

SOUTH DAKOTA

RANK
45

Score: 10/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 10/15

Factors Helping the State Score

- *Drone Jobs Estimate*: South Dakota has 20.0 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: South Dakota law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Law Vesting Air Rights with Landowners*: South Dakota law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.¹⁰²
- *Avigation Easement Law*: South Dakota law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.¹⁰³
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make South Dakota the 45th most drone-friendly state in the country.

102. South Dakota law expressly vested air rights with landowners until 2019, when that law was repealed. See S.D. Codified Laws § 50-13-3 (repealed).

103. South Dakota law had an avigation easement law until 2019, when that law was repealed. See S.D. Codified Laws § 50-13-4 (repealed).

TENNESSEE

RANK
19
(TIED)

Score: 40/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Tennessee law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.¹⁰⁴
- *Avigation Easement Law*: Tennessee law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.¹⁰⁵
- *Drone Jobs Estimate*: Tennessee has 10.3 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Tennessee law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make Tennessee tied for the 19th most drone-friendly state in the country.

104. Tenn. Code Ann. § 42-1-103 (2014).

105. Tenn. Code Ann. § 42-1-104(a) (2018).

TEXAS

RANK
9
(TIED)

Score: 54/100

- Airspace Lease Law: 30/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 4/15

Factors Helping the State Score

- *Airspace Lease Law*: Texas law allows airspace leasing above local roads, state roads, and state property.¹⁰⁶ This law allows state authorities to create drone highways above state and local roadways and reduces the risk of litigation.
- *Drone Task Force or Program Office*: Texas gets full points. In 2019, Governor Greg Abbott created a statewide task force—the Connected and Autonomous Vehicle Task Force—overseen by the Texas Department of Transportation (TxDOT).¹⁰⁷ The task force has representatives from the drone industry, and part of the task force’s mission is to stimulate drone services and economic development in Texas.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Texas law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Texas law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Jobs Estimate*: Texas has 7.2 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Texas tied for the 9th most drone-friendly state in the country.

106. Tex. Transp. Code Ann. § 202.052 (2019); Tex. Loc. Gov’t Code § 373.005 (2019).

107. TxDOT Media Center, “Texas to Form Connected and Automated Vehicle Task Force,” press release, January 22, 2019.

UTAH

RANK
28

Score: 34/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 4/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Utah law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.¹⁰⁸
- *Drone Task Force or Program Office*: Utah gets full points. The state has a drone program office and staff within the Division of Aeronautics of the Utah Department of Transportation (UDOT).¹⁰⁹ The program aims to educate the public about drone technology and encourage commercial drone services in the state.

Factors Hindering the State Score

- *Airspace Lease Law*: Utah law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.¹¹⁰
- *Avigation Easement Law*: Utah law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Jobs Estimate*: Utah has 7.3 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Utah the 28th most drone-friendly state in the country.

108. Utah Code Ann. § 76-6-206 (2020).

109. UDOT, “Unmanned Aircraft Systems and Advanced Air Mobility,” accessed December 2, 2020, <https://site.utah.gov/connect/employee-resources/uas/>.

110. Arguably Utah officials could lease airspace to drone operators, but the current law is unclear. Utah’s airspace lease law allows for UDOT, municipalities, counties, and airport authorities to lease, for *airport purposes*, “any available property that is owned or controlled by the department or by a municipality, county, or airport authority.” Utah Code Ann. § 72-10-203.

VERMONT

RANK
16

Score: 47/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 12/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Vermont law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.¹¹¹
- *Avigation Easement Law*: Vermont law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.¹¹²
- *Drone Jobs Estimate*: Vermont has 24.6 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Vermont law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a statewide drone task force or creating a drone program office within the transportation department.¹¹³

These factors make Vermont the 16th most drone-friendly state in the country.

111. Vt. Stat. Ann. tit. 5 § 402 (1985).

112. Vt. Stat. Ann. tit. 5 § 403 (1985).

113. Vermont created a UAS program within its Agency of Transportation. The program's main usage in this capacity is aiding that agency in emergency operations, infrastructure inspection, and construction site monitoring. Dan Delabruere, Vermont Rail and Aviation Bureau Director, "VTrans UAS Unmanned Aircraft Systems" (presentation, Vermont Senate Committee on Transportation, March 14, 2019), [https://legislature.vermont.gov/Documents/2020/WorkGroups/Senate%20Transportation/VTrans%20Testimony/VTrans%20Aviation%20Testimony/W-Dan%20Delabruere-VTrans%20Unmanned%20Aircraft%20Systems%20\(UAS\)-3-14-2019.pdf](https://legislature.vermont.gov/Documents/2020/WorkGroups/Senate%20Transportation/VTrans%20Testimony/VTrans%20Aviation%20Testimony/W-Dan%20Delabruere-VTrans%20Unmanned%20Aircraft%20Systems%20(UAS)-3-14-2019.pdf). While commendable, the narrow scope of the program's responsibilities does not satisfy the criteria of this report.

VIRGINIA

RANK
5

Score: 60/100

- Airspace Lease Law: 30/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 20/20
- Drone Jobs Estimate: 10/15

Factors Helping the State Score

- *Airspace Lease Law*: Virginia law allows state and local authorities to lease low-altitude airspace above state and local roads.¹¹⁴ Such a law allows state or local authorities to create drone highways above state and local roadways.
- *Drone Task Force or Program Office*: Virginia gets full points. The Department of Aviation created and oversees a program office—the Unmanned Systems Center—devoted to drone technologies.¹¹⁵ Further, a state law passed in March 2020 created a drone policy advisory group to the Department of Aviation.¹¹⁶
- *Drone Jobs Estimate*: Virginia has 20.2 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Virginia law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Virginia law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.

These factors make Virginia the 5th most drone-friendly state in the country.

114. Va. Code Ann. § 33.2-226 (2015) (leasing airspace above state highways); Va. Code Ann. § 15.2-2030 (leasing airspace above local roads).

115. Virginia Unmanned Systems Center at CIT, “Advisory Board,” accessed November 4, 2020, <https://www.vus.virginia.gov/ums-advisory-board/>.

116. See Virginia Acts of Assembly—2020 Sessions, “An Act to amend and reenact § 15.2-926.3 of the Code of Virginia, relating to local regulation of unmanned aircraft,” H. 742 (signed March 12, 2020).

WASHINGTON

RANK
17

Score: 45/100

- Airspace Lease Law: 30/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 10/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Airspace Lease Law*: Washington law allows state and local authorities to lease low-altitude airspace above state and local roads.¹¹⁷ Such a law allows authorities to create drone highways above state and local roadways.
- *Drone Task Force or Program Office*: Washington gets partial points because Governor Jay Inslee announced the creation of a temporary task force on unmanned aircraft systems to advise his office.¹¹⁸
- *Drone Jobs Estimate*: Washington has 10.5 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: Washington law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: Washington law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.

These factors make Washington the 17th most drone-friendly state in the country.

117. Wash. Rev. Code Ann. § 35.22.302 (2019); Wash. Rev. Code Ann. § 47.12.120 (2019).

118. "Governor Task Force on Unmanned Aircraft Systems," *TVW*, June 30, 2014, video, 2:53:17, <http://www.tvw.org/watch/?eventID=2014061067>.

WEST VIRGINIA

RANK
41

Score: 15/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 0/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 5/15

Factors Helping the State Score

- *Airspace Lease Law*: West Virginia law allows state authorities to lease low-altitude airspace above state roads.¹¹⁹ Such a law allows authorities to create drone highways above state roadways. However, the state did not receive full points because the law is silent as to whether local officials can lease airspace above local roads.
- *Drone Jobs Estimate*: West Virginia has 10.1 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Law Vesting Air Rights with Landowners*: West Virginia law does not expressly provide air rights to landowners, which raises litigation risk for drone operators because landowners do not know the extent of their property rights and may sue to protect their interests.
- *Avigation Easement Law*: West Virginia law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make West Virginia the 41st most drone-friendly state in the country.

119. W. Va. Code § 17-2A-19a (2019).

WISCONSIN

RANK
12

Score: 49/100

- Airspace Lease Law: 10/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 4/15

Factors Helping the State Score

- *Airspace Lease Law*: Wisconsin law allows local authorities to lease low-altitude airspace above local roads.¹²⁰ Such a law allows authorities to create drone highways above local roadways. However, the state did not receive full points because the law is silent as to whether state officials can lease airspace above state roads and state property.
- *Law Vesting Air Rights with Landowners*: Wisconsin law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.¹²¹
- *Avigation Easement Law*: Wisconsin law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.¹²²

Factors Hindering the State Score

- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Wisconsin has 8.3 drone-related jobs per 100,000 people, ranking it in the bottom half of states.

These factors make Wisconsin the 12th most drone-friendly state in the country.

120. Wis. Stat. § 66.0915 (2019).

121. Wis. Stat. § 114.03 (2019).

122. Wis. Stat. § 114.04 (2019).

WYOMING

RANK
13
(TIED)

Score: 48/100

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 25/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: 13/15

Factors Helping the State Score

- *Law Vesting Air Rights with Landowners*: Wyoming law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.¹²³
- *Avigation Easement Law*: Wyoming law creates an avigation easement, which means drone operators are protected from nuisance and trespass laws as long as their drones do not disturb people on the ground.¹²⁴
- *Drone Jobs Estimate*: Wyoming has 25.3 drone-related jobs per 100,000 people, ranking it in the top half of states.

Factors Hindering the State Score

- *Airspace Lease Law*: Wyoming law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow state or local authorities to create drone highways above roadways.
- *Drone Task Force or Program Office*: State leaders should consider convening a state-wide drone task force or creating a drone program office within the transportation department.

These factors make Wyoming tied for the 13th most drone-friendly state in the country.

123. Wyo. Stat. § 10-4-302 (2018).

124. Wyo. Stat. § 10-4-303 (2018).

PUERTO RICO

NO
RANK

Score: NA

- Airspace Lease Law: 0/30
- Law Vesting Air Rights with Landowners: 10/10
- Avigation Easement Law: 0/25
- Drone Task Force or Program Office: 0/20
- Drone Jobs Estimate: NA

Factors Helping the Territory Score

- *Law Vesting Air Rights with Landowners*: Puerto Rico law expressly provides air rights to landowners, which reduces litigation risk for drone operators because landowners know the extent of their property rights.¹²⁵

Factors Hindering the Territory Score

- *Airspace Lease Law*: Puerto Rico law does not allow public authorities to lease low-altitude airspace above public roads and public property. Such a law would allow territory or local authorities to create drone highways above roadways.
- *Avigation Easement Law*: Puerto Rico law does not create an avigation easement, which means drone operators may be subject to nuisance and trespass laws, even if their drones do not disturb people on the ground.
- *Drone Task Force or Program Office*: Territory leaders should consider convening a territory-wide drone task force or creating a drone program office within the transportation department.
- *Drone Jobs Estimate*: Our data source does not provide jobs data for Puerto Rico, so we do not have a drone jobs estimate for the territory.

125. 21 L.P.R.A. § 4601(dd) (2020) (defining “land” as including “the space above” the land).